

## CLAIMS:

1. A method for fabrication of in-laid metal structures, comprising the steps of :
  - providing a substrate with a dielectric material on top thereof,
  - depositing a protection layer on top of the dielectric material,
  - depositing a sacrificial layer on top of the protection layer, the sacrificial layer
- 5 having a mechanical strength which is lower than the mechanical strength of the protection layer,
  - making an opening through the sacrificial layer, through the protection layer and into the dielectric material,
  - depositing a barrier layer in the opening and on the sacrificial layer
- 10 - depositing metal material on the barrier layer, the metal material filling the opening,
  - removing portions of the metal material existing beyond the opening by means of polishing, and
  - removing the barrier layer and the sacrificial layer in one polishing step.
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2. A method according to claim 1, wherein the portions of the metal material existing beyond the opening, the barrier layer and the sacrificial layer are removed in one polishing step.
- 20 3. A method according to claim 1, wherein the one polishing step makes use of one consumable set.
4. A method according to claim 1, wherein the polishing step is a step of chemical mechanical polishing (CMP).
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5. A method according to claim 1, wherein the adhesion between the sacrificial layer and the protection layer is weaker than the adhesion between the protection layer and the dielectric material.

6. A method according to claim 1, wherein the sacrificial layer is a low-k material.
7. A method according to claim 1, wherein the dielectric material comprises a  
5 low-k material.
8. A method according to claim 1, wherein the step of depositing metal material comprises depositing copper, aluminium, silver, gold, or tungsten.
- 10 9. A method according to claim 1, wherein the step of depositing metal material comprises depositing metal material by chemical vapor deposition.
10. A method for manufacturing a semiconductor device using a method for fabrication of in-laid metal structures according to claim 1.